

Abstract Submitted  
for the DAMOP15 Meeting of  
The American Physical Society

**UV Pump – VUV Probe Studies of Ultrafast Dynamics in Simple Aromatic Molecules**<sup>1</sup> NIRANJAN SHIVARAM, ELIO CHAMPENOIS, JAMES CRYAN, TRAVIS WRIGHT, ALI BELKACEM, Chemical Sciences Division, Lawrence Berkeley National Laboratory — Aromatic molecules like nitrophenols play an important role in atmospheric chemistry. They have a high absorption cross section in the ultraviolet (UV) where excitations lead to different fragmentation pathways involving internal relaxation processes. These pathways lead to elimination of the hydroxyl and nitro groups, internal re-arrangement of these groups and even formation of bonds between them. We use a high pulse energy, high repetition rate femtosecond laser system (30 mJ, 1 kHz, 780 nm, 25 fs) to generate high flux vacuum ultraviolet (VUV)/extreme ultraviolet (XUV) high order harmonics in a gas such as argon. These harmonics are then used to study femtosecond time resolved dynamics in neutral 2-Nitrophenol excited to a manifold of states around 4.75 eV and probed with higher harmonics. A velocity map imaging spectrometer is used to obtain energy/angle resolved photo-ion and photoelectron spectra as a function of pump-probe delay.

<sup>1</sup>Supported by Chemical Sciences, Geosciences and Biosciences division of BES/DOE

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Date submitted: 01 Feb 2015

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